

# *Chapter I: Purpose and Need*

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## **Introduction**

The National Park Service proposes to replace the South Fork of the Merced River Bridge (South Fork Bridge) in Yosemite National Park. The South Fork Bridge spans the South Fork of the Merced Wild and Scenic River and is located on Wawona Road within the Wawona developed area (see figure I- 1). Approximately one- third of park visitors travel to the park via Wawona Road, crossing over the South Fork Bridge. As such, the South Fork Bridge is an essential component of Yosemite National Park's transportation infrastructure.

The original South Fork Bridge was constructed in 1931, and was reconstructed in 1938. The bridge was originally constructed as a triple- span, steel girder deck bridge, supported by spread concrete footings, two unreinforced cement rubble abutments, and two unreinforced cement rubble in- stream piers (BPR 1931). It is currently 134- feet long and 29- feet wide, with two 10- foot- wide travel lanes consisting of steel girders, a laminated timber deck, and asphalt surface. Very low concrete barrier walls are in place across both sides of the bridge and no handrails are present. There are no sidewalks or bridle paths on the bridge. The South Fork Bridge was designed and built on a 30- degree skew across the river.

Like several bridges constructed during the 1920s and 1930s, the original South Fork Bridge was characterized by a massive log stringer façade with wooden guardrails, which gave it the appearance of being a rustic log structure (Quin 1991). The wooden guardrails were replaced after the flood of 1938, probably to meet the safety standards of the period. Removal of the decorative timber trim occurred in 1960, when the bridge deck was replaced (Quin 1991). The timber trim was replaced by encasing the sides of the bridge in plain reinforced concrete at a canted angle downward. This action destroyed the historic architectural integrity of the South Fork Bridge. In general, the cobblestone architectural feature encasing the piers and wingwalls is found throughout the historic district of Wawona (Quin 1991).

The bridge is not considered eligible for listing on the National Register of Historic Places on its own, or as an element of the Wawona Cultural Landscape. The National Park Service and the California State Historic Preservation Office have consulted on this determination in 1977, 1993, 1995, and 1996. Historic American Engineering Record (HAER) documentation was completed in 1991, as mitigation for the demolition of the bridge.

## ***History of Proposed Project***

During 1992, a structural inspection of the bridge identified deflection (bending) in the steel girders. This required the park to impose weight restrictions, which reduced the load limit from 19 to 7 tons. As a result, the bridge was determined to be critically deficient, but was allowed to remain in service. In a 1993 hydraulic review, a scour hole was discovered under one pier during a subsurface investigation, which resulted in a recommendation for complete reconstruction. The January 1997 flood increased scouring around the piers, further affecting the structural integrity and safety of the bridge. The South Fork Bridge was then condemned and an emergency temporary Bailey bridge was installed to carry Wawona Road traffic.



**Figure I-1 Yosemite National Park and Vicinity**

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Original South Fork  
Bridge (1930s)

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NPS Photo

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Existing South Fork  
Bridge (November 2002)

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NPS Photo

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Temporary Bailey  
bridge currently carries  
Wawona Road traffic

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NPS Photo

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Jersey barrier  
placement (left) and  
posted speed limit for  
the temporary Bailey  
bridge

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NPS Photo



Following installation of the temporary Bailey bridge, the South Fork Bridge was closed to vehicle access by placing concrete Jersey barriers to block access to both ends of the bridge. The Bailey bridge is the current U.S. Army standard design of prefabricated steel panel bridge, built onsite from a pre-engineered system of ready-to-assemble, standardized, prefabricated components (BBI 2002).

The temporary Bailey bridge, which was installed in 1998, has served beyond the original intended use period and has created a visual intrusion on an otherwise popular scenic location (NPS 2002). Although narrow, it has provided reliable passage for traffic on Wawona Road, which serves the annual visitors who enter the park at the South Entrance, or approximately one-third of the total annual visitors.

In 1996, an environmental assessment was released detailing the removal and replacement of the South Fork Bridge, a Finding of No Significant Impact was signed, and the design phase for the project was begun. A 1999 lawsuit on the proposed El Portal Road Improvement Project halted plans to remove and replace the South Fork Bridge until completion of an approved comprehensive management plan for the Merced Wild and Scenic River (NPS 2001). A Record of Decision for the *Merced Wild and Scenic River Comprehensive Management Plan* (Merced River Plan) was signed in August 2000 and revised in November 2000.

## Purpose of and Need for the Project

The purpose of the South Fork Merced River Bridge Replacement Project is to remove a hazardous, condemned structure and reconstruct a bridge that will provide adequate and safe vehicle access, be aesthetically appropriate to the scenic nature of the area, and comply with the guidance of the Merced River Plan by restoring a more natural flow in this reach of the South Fork Merced River.

The project is needed for several reasons. A bridge across the South Fork Merced River is an essential piece of park infrastructure, serving along a major travel corridor for one-third of the park's annual visitors, as well as park staff and Wawona residents. The 1980 *General Management Plan* for Yosemite National Park established this route as an auto touring through-route and a trans-Sierra connection that would be maintained for these uses during the life of the Plan. The condemned bridge structure is hazardous and must be removed to prevent a potential failure and collapse. An uncontrolled collapse could not only cause human injury or fatality, but could result in localized flooding, which may damage the South Fork Merced River bank and other park natural and cultural resources.

Although the park has installed a temporary Bailey bridge to accommodate access in the short term, this bridge does not meet the long-term access needs. The bridge was constructed on temporary footings that were not structurally designed to support the typical life span of a permanent bridge. In addition, the Bailey bridge structurally depends on prefabricated steel sections bolted together. This structural design is for short-term use, as constant vibration from ongoing use results in a gradual loosening of the bolts, thus requiring a high level of ongoing inspection and maintenance to ensure structural integrity and safety. The narrow width of the Bailey bridge does not meet safety and transportation capacity standards developed by the National Park Service and based on highway standards from the American Association of State Highway and Transportation Officials. In addition, its prefabricated steel design does not fit with park guidelines related to the preservation and protection of cultural and scenic resource values.

Construction of a new bridge would allow for a design that better protects the scenic values of the Wawona area, provide adequate and safe vehicle access, and provide a safe pedestrian river crossing in the form of the proposed sidewalk.

## Planning Context

### ***Relationship to Yosemite National Park Plans***

Planning in Yosemite National Park takes two different forms: general management planning and implementation planning. The South Fork Merced River Bridge Replacement Project is an example of an implementation plan. General management plans are required for national parks by the National Park and Recreation Act of 1978.

The purpose of a general management plan is to set a “clearly defined direction for resource preservation and visitor use” (NPS 1998) and provide general directions and policies to guide planning and management in the park. The *General Management Plan* is the overall planning document for Yosemite National Park. In addition to establishing Highway 41 as an auto touring through- route and a trans- Sierra connector, the *General Management Plan* also established specific goals in the Wawona South Entrance and Mariposa Grove of Giant Sequoias areas. Some of these goals included providing bus service to Badger Pass and Yosemite Valley and upgrading physical facilities to eliminate impacts on park resources. The South Fork Merced River Bridge Replacement Project would continue to allow Highway 41 to serve as a primary access route from the south and an auto touring through- route as discussed in the *General Management Plan*.

The Merced River Plan is a general management plan that guides management of the Merced Wild and Scenic River corridor. In designating the Merced River as a Wild and Scenic River, Congress authorized the National Park Service to prepare a management plan for the river by making appropriate revisions to the parks *General Management Plan* (16 USC 1274(a)(62)). The Merced River Plan, which amended the *General Management Plan* provides a framework for decision making on future management actions within the Merced Wild and Scenic River corridor. The South Fork Merced River Bridge Replacement Project complies with conditions outlined in the Merced River Plan.

Implementation plans, which tier from the *General Management Plan* and Merced River Plan, focus on “how to implement an activity or project needed to achieve a long- term goal” (NPS 1998). Implementation plans may direct specific projects as well as ongoing management activities or programs, and provide a more extensive level of detail and analysis. The *Yosemite Valley Plan* is an implementation plan that executes many of the provisions found in the *General Management Plan* while providing more specific detail in carrying out the goals and actions that relate to Yosemite Valley. The *Yosemite Valley Plan* guides protection of natural and cultural resources opportunities for high quality resource- based visitor experience, reduction of traffic congestion, and effective park operations (NPS 2000a). Although the *Yosemite Valley Plan* focuses primarily on Yosemite Valley, it does include actions in other parts of the park such as moving employee housing outside of Yosemite Valley to the Wawona area. The South Fork Merced River Bridge Replacement Project would assist in implementation of the goals of the *Yosemite Valley Plan* through improvements in traffic flow and protection of natural resources. The South Fork Merced River Bridge Replacement Project represents the implementation project that tiers off of the Merced River Plan and *General Management Plan*, while complying with other applicable planning documents and regulations.

### ***Relationship to Other Plans***

The 1982 Surface Transportation Assistance Act established the Federal Lands Highways Program that distributes funds from federal motor fuel tax revenues for the construction and rehabilitation of federal roads, including National Park Service roads. The National Park Service has prepared a

plan for a long- term program of road improvement with the intent to preserve and extend the service life of principal park roads and enhance road safety. The Federal Highway Administration executes the design and construction of approved road improvement projects in cooperation with the National Park Service.

As part of the Federal Lands Highways Program, the National Park Service evaluated Yosemite National Park roads and prepared a *Road System Evaluation/Parkwide Road Engineering Study*. This study recommended improving the 6.3 miles of Wawona Road and included rehabilitating or replacing the South Fork Bridge (NPS 1989). The study also suggested that the road and bridge be widened to accommodate 12- foot- wide travel lanes. This project proposes to implement the recommendation for replacing and widening the bridge.

## **Regulations and Policies**

This South Fork Merced River Bridge Replacement Project was written within a complex set of regulations and policies. The environmental assessment must comply with the requirements of the National Environmental Policy Act, within the parameters of other legislation governing land use within Yosemite National Park (see Appendix A).

The Organic Act of 1916 established the National Park Service in order to “promote and regulate the use of parks” and defined the purpose of the national parks to “conserve the scenery and natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” This law provides overall guidance for the management of Yosemite National Park. The fundamental purpose of the National Park Service, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, is to conserve park resources and values.

*National Park Service Management Policies 2001* provides guidance on addressing impairment of park resources and values. Congress has granted management discretion to allow certain impacts within parks, but that discretion is limited by the statutory requirement that park resources and values be left unimpaired unless a particular law directly and specifically provides otherwise. In this manner, the primary responsibility of the National Park Service was established under the Organic Act, ensuring that park resources and values would continue to exist in a condition that would allow citizens to have current and future opportunities for their enjoyment.

## **Management Goals**

The National Park Service has established management goals that identify long- range direction for Yosemite National Park within the park’s *General Management Plan*, *Yosemite Valley Plan*, and the Merced River Plan. Any proposed project must carefully balance multiple goals, especially in a park as large and complex as Yosemite National Park. This section presents the goals from Yosemite’s *General Management Plan* and the Merced River Plan.

The *General Management Plan* presents five broad goals for park management; they are carried forward in the *Yosemite Valley Plan* that amends the *General Management Plan*, and include:

- Reclaim priceless natural beauty
- Allow natural processes to prevail
- Promote visitor understanding and enjoyment
- Markedly reduce traffic congestion
- Reduce crowding

The Merced River Plan emulates the goals presented in the *General Management Plan* and *Yosemite Valley Plan*; however, it also presents additional goals specific to management of the Merced Wild and Scenic River. The main stem Merced River and South Fork Merced River were designated by Congress for protection under the Wild and Scenic Rivers Act in 1987. The National Park Service prepared the five goals within the Merced River Plan to further the policy established by the Wild and Scenic Rivers Act, principally to preserve designated rivers in free flowing condition and protect and enhance identified Outstandingly Remarkable Values. The Merced River Plan goals include:

- Protect and enhance river- related natural resources
- Protect and restore natural hydrological and geomorphic processes
- Protect and enhance river- related cultural resources
- Provide diverse river- related recreational and educational experiences
- Provide appropriate land uses

Seven management elements are applied under the Merced River Plan, and they prescribe the desired future conditions, typical visitor activities and experiences, and park facilities and management activities allowed in the river corridor. These management elements are discussed under the Merced Wild and Scenic River section (see Chapter V) of this environmental assessment, as they relate to the proposed action and other alternatives.

## Public Scoping

The Council on Environmental Quality requires agencies to make diligent efforts to involve the interested and affected public in the National Environmental Policy Act process (1506.6), regardless of the level of impact and/or documentation. Further, agencies must also encourage and facilitate public involvement in decisions that affect the quality of the human environment. The effort to involve agencies and citizens in determining the scope of issues to be addressed in this environmental assessment is described in this section.

Scoping is used to determine the important issues and eliminate issues that are not important in project evaluation; allocate assignments among the interdisciplinary team members and/or other participating agencies; identify permits, surveys, consultations, etc., required by federal and state agencies; and create a schedule that allows adequate time to prepare and distribute the assessment of effect for public review and comment prior to formulation of a final decision. The scoping process includes all interested agencies, or any agency with jurisdiction by law or expertise, e.g., the Advisory Council on Historic Preservation, the State Historic Preservation Officer, and American Indian tribes, to obtain early participation.

Internal scoping for this environmental assessment was begun October 23, 2002, with an overview meeting among the Yosemite National Park project manager, the project manager of the National Park Service, Denver support offices, and environmental consultants. The environmental assessment management team discussed available data, environmental assessment preparation and time frames, project scoping, and a field site visit. Additional internal scoping for environmental assessment preparation occurred November 11–13, 2002, at Yosemite National Park and culminated in an onsite inspection of the South Fork Bridge site.

This project was originally evaluated under an earlier environmental assessment entitled, *Environmental Assessment, Replace South Fork Merced River Bridge* during 1996. The draft of the 1996 environmental assessment was released for a 30- day public review period beginning April 3, 1996 and ending May 10, 1996. Press releases describing the current proposed action and



requesting comments were issued during September 2002. In addition, Yosemite National Park is committed to holding public open houses to solicit public comment and input for various projects being implemented in the park. The purpose of the open houses is to provide the public with an opportunity to discuss proposed actions and their alternatives, and for the public to provide input and written comments that may be incorporated into the project planning process. The South Fork Merced River Bridge Replacement Project was part of an Open House held on October 23, 2002. An informational hand-out was provided at the October 23, 2002 Open House to those interested in the project. Additional open houses were held on February 26, 2003 and March 28, 2003, and included discussions of the South Fork Merced River Bridge Replacement Project. Quarterly *Planning Update* newsletters issued September 2002 and January 2003 also addressed the project.

## ***Issues and Concerns***

The following issues were raised during the public scoping process conducted for this project (see Chapter VI, Consultation and Coordination) and by National Park Service staff. These issues are addressed in the analysis presented in Chapter III, Affected Environment and Chapter IV, Environmental Consequences.

- Yosemite National Park should replace the South Fork Bridge as proposed.
- Yosemite National Park should adopt the proposed South Fork Merced River Bridge Replacement Project because it conforms with other Yosemite National Park plans.
- Yosemite National Park should design the South Fork Bridge to maintain the historic appearance of the original Wawona Bridge.
- The South Fork Merced River Bridge Replacement Project should require a natural appearance for the bridge.
- Yosemite National Park should ensure that the new South Fork Bridge is sufficiently wide.
- The South Fork Merced River Bridge Replacement Project should require 5- foot- wide shoulders.
- Yosemite National Park should employ solar technology and recycled materials in construction projects.

The following issues were raised during the public scoping period, but are considered outside of the scope of this project and are not addressed in the *South Fork Merced River Bridge Replacement Environmental Assessment*.

- Yosemite National Park should prepare a single Draft Environmental Impact Statement that evaluates the cumulative impacts of the Environmental Education Campus, Yosemite Lodge area, Curry Village/East Valley Campground, South Fork Bridge, and El Portal Office Building Plans.
- Yosemite National Park should relocate the temporary bridge in Wawona upstream to improve traffic circulation.
- Yosemite National Park should consider providing public transportation to Wawona.

## Organization of this Environmental Assessment

The contents of this document are described by chapter as follows:

- Chapter I, Purpose and Need – The first chapter includes a discussion of the project purpose and need; park purpose, significance, and mission; planning context; relationship to management goals and objectives; and scope of this environmental assessment.
- Chapter II, Alternatives – This chapter presents the project alternatives, including the No Action Alternative, considered by the National Park Service for the replacement of the South Fork Bridge. Mitigation measures are identified, the environmentally preferred alternative is discussed, and a summary table comparing the environmental consequences of the alternatives is provided at the end of the chapter.
- Chapter III, Affected Environment – This chapter provides an overview of the affected environment of the South Fork Bridge and surrounding area. Also described are the existing conditions of natural resources, cultural resources, social and economic resources, and the Merced Wild and Scenic River in the project vicinity.
- Chapter IV, Environmental Consequences – This chapter presents an analysis of the potential environmental impacts of each proposed alternative, including the methods for assessing environmental consequences (i.e., consideration of duration and intensity of impacts in light of measures to mitigate impacts). An explanation of resource impairment follows, and is assessed by alternative, according to National Park Service policy.
- Chapter V, Merced Wild and Scenic River – This chapter summarizes the Wild and Scenic Rivers Act and the Merced River Plan and its seven management elements. Chapter V evaluates consistency of the proposed action with the Merced River Plan and provides a Section 7 determination. A Section 7 determination evaluates the impact of the Preferred Alternative on the condition and values for which the Wild And Scenic River designation was conferred.
- Chapter VI, Consultation and Coordination – This chapter summarizes the process used in preparing and reviewing this environmental assessment, as well as project scoping history. It also lists the government agencies and organizations that were contacted for information, that assisted in identifying important issues and developing alternatives, or that received copies of the administrative review of the South Fork Merced River Bridge Replacement Project.
- Chapter VII, List of Preparers and Reviewers – This chapter lists the names and qualifications of the persons who are primarily responsible for preparing the document and acknowledges those who provided valuable assistance in the environmental assessment preparation.
- Chapter VIII, Glossary and Acronyms – This chapter defines the technical terms and acronyms used in this document, much like a dictionary.
- Chapter IX, Bibliography – This chapter lists the references cited, including technical documents, legal citations, and National Park Service orders and guidance documents.